

Name Key

Date _____

202—Review

Justify the following statements with postulates, properties, definitions, or theorems.

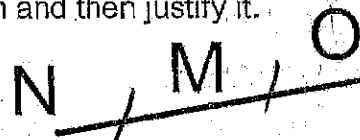
1. Reflexive $m\angle B = m\angle B$
2. Symmetric If $RS = TW$, then $TW = RS$.
3. Substitution If $m\angle 1 + m\angle 2 = 100$ and $m\angle 2 = 75$, then $m\angle 1 + 75 = 100$.
4. Subtraction If $m\angle 1 + 75 = 100$, then $m\angle 1 = 25$.
5. S.A.P If S is between R and T , then $RT = RS + ST$.
6. def of Midpt If X is the midpoint of \overline{UV} , then $UX = XV$.
7. Transitive If $MN = NO$ and $NO = OP$, then $MN = OP$.
8. Substitution If $m\angle 1 + m\angle 2 + m\angle 3 = 180$ and $m\angle 3 = 70$,
then $m\angle 1 + m\angle 2 + 70 = 180$.
9. Transitive If $\angle 4 \cong \angle 8$ and $\angle 8 \cong \angle 10$, then $\angle 4 \cong \angle 10$.
10. Reflexive $\overline{AB} \cong \overline{AB}$
11. Substitution If the $m\angle 5 = m\angle 6$ and $m\angle 5 + m\angle 6 = 180$,
then $m\angle 5 + m\angle 5 = 180$.
12. Substitution If $m\angle 5 + m\angle 5 = 180$, then $2m\angle 5 = 180$.
13. Division If $2m\angle 5 = 180$, then $m\angle 5 = 90$.
14. def of midpt If K is the midpoint of \overline{JL} , then $\overline{JK} \cong \overline{KL}$.
15. transitive If $m\angle 1 = m\angle 3$ and $m\angle 3 = 48$, then $m\angle 1 = 48$.
16. reflexive $\angle RST \cong \angle RST$
17. distributive If $3(x - 8) = 39$, then $3x - 24 = 39$.
18. addition If $m\angle A = m\angle B$ and $m\angle C = m\angle D$,
then $m\angle A + m\angle C = m\angle B + m\angle D$.
19. addition If $3x - 24 = 39$, then $3x = 63$.
20. division If $3x = 63$, then $x = 21$.
21. AAP If P is in the interior of $\angle LMN$,
then $m\angle LMP + m\angle PMN = m\angle LMN$
22. Multiplication If $\frac{1}{2}x = 10$, then $x = 20$.

Possible Reasons:
Addition,
Subtraction,
Multiplication,
Distributive,
Reflexive,
Symmetric,
Transitive,
Substitution,
Division,
Def. of midpoint,
Def. of \angle bisector,
Segment + Postulate,
Angle + Postulate

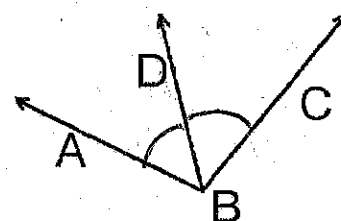
23. Distributive If $6(x+1) = 24$, then $6x + 6 = 24$.
24. Subtraction If $EF = GH$ and $AB = CD$, then $AB - EF = CD - GH$.
25. Symmetric If $m\angle X = m\angle Y$, then $m\angle Y = m\angle X$.

Write a conclusion based on the given and the diagram and then justify it.

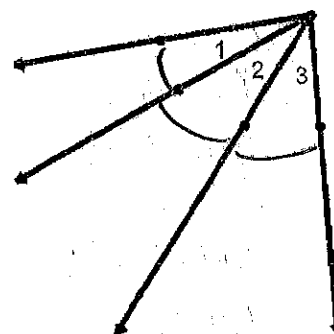
26. Given: M is the midpoint of \overline{NO} .
 Conclusion: $NM = MO$ or $\overline{NM} \cong \overline{MO}$
 Reason: def of midpoint



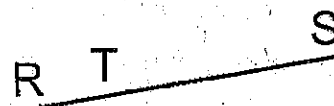
27. Given: \overrightarrow{BD} bisects $\angle ABC$
 Conclusion: $\angle ABD \cong \angle DBC$ or $m\angle ABD = m\angle DBC$
 Reason: def of \angle bisector



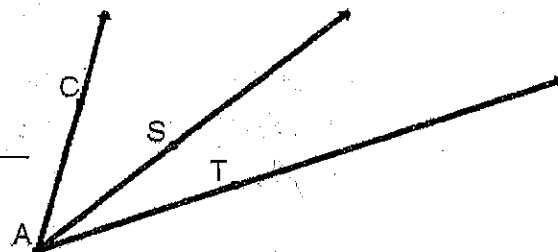
28. Given: $\angle 1 \cong \angle 2$; $\angle 2 \cong \angle 3$
 Conclusion: $\angle 1 \cong \angle 3$
 Reason: Transitive



29. Given: Diagram
 Conclusion: $RS = RT + TS$
 Reason: S.A.P



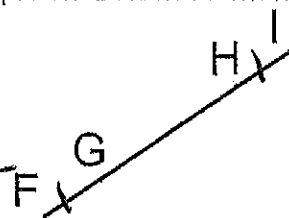
30. Given: Diagram
 Conclusion: $m\angle CAT = m\angle CAS + m\angle SAT$
 Reason: A.A.P



Write out the following proofs below. Remember to mark the diagrams.

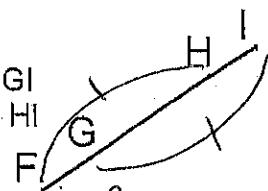
31. Given: $FG = HI$
Prove: $FH = GI$

Statements	Reasons
① $FG = HI$	① Given
② $GH = GH$	② Reflexive
③ $FG + GH = GH + HI$	③ Addition
④ $FG + GH = FH$ $GH + HI = GI$	④ SAP
⑤ $FH = GI$	⑤ Subst.

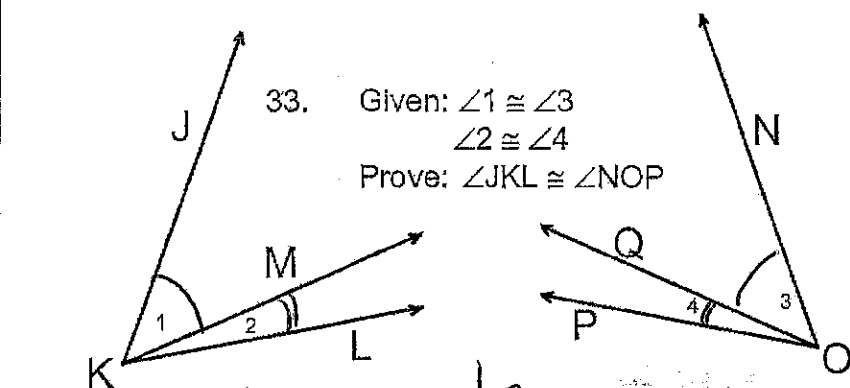


32. Given: $FH = GI$
Prove: $FG = HI$

Statements	Reasons
① $FH = GI$	① Given
② $FH = FG + GH$ $GI = GH + HI$	② SAP
③ $FG + GH = GH + HI$	③ Subst
④ $GH = GH$	④ Reflexive
⑤ $FG = HI$	⑤ Subst

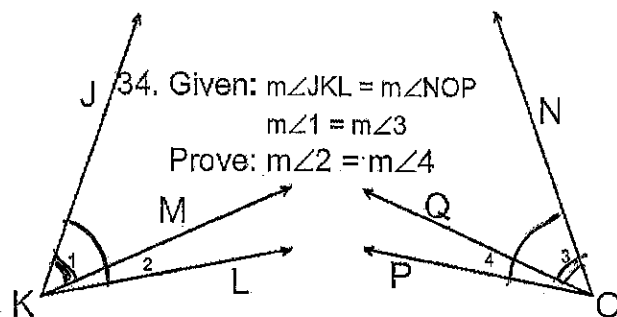


33. Given: $\angle 1 \cong \angle 3$
 $\angle 2 \cong \angle 4$
Prove: $\angle JKL \cong \angle NOP$



Statements	Reasons
① $\angle 1 \cong \angle 3; \angle 2 \cong \angle 4$	① Given
② $m\angle 1 = m\angle 3; m\angle 2 = m\angle 4$	② def of \cong
③ $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	③ Addition
④ $m\angle 1 + m\angle 2 = m\angle JKL$ $m\angle 3 + m\angle 4 = m\angle NOP$	④ AAP
⑤ $m\angle JKL = m\angle NOP$	⑤ Subst
⑥ $\angle JKL \cong \angle NOP$	⑥ def of \cong

34. Given: $m\angle JKL = m\angle NOP$
 $m\angle 1 = m\angle 3$
Prove: $m\angle 2 = m\angle 4$



Statements	Reasons
① $m\angle JKL = m\angle NOP; m\angle 1 = m\angle 3$	① Given
② $m\angle JKL = m\angle 1 + m\angle 2$ $m\angle NOP = m\angle 3 + m\angle 4$	② AAP
③ $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	③ Subst
④ $m\angle 2 = m\angle 4$	④ Subst

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2-7

Skills Practice

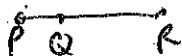
Proving Segment Relationships

Justify each statement with a property of equality, a property of congruence, or a postulate.

1. $QA = QA$ Reflexive

2. If $\overline{AB} \cong \overline{BC}$ and $\overline{BC} \cong \overline{CE}$, then $\overline{AB} \cong \overline{CE}$. transitive

3. If Q is between P and R , then $PR = PQ + QR$. SAP



4. If $AB + BC = EF + FG$ and $AB + BC = AC$, then $EF + FG = AC$. Substitution

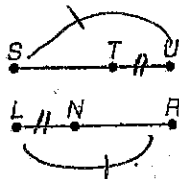
Lesson 2-7

Complete each proof.

5. Given: $\overline{SU} \cong \overline{LR}$
 $\overline{TU} \cong \overline{LN}$

Prove: $\overline{ST} \cong \overline{NR}$

Proof:



Statements

Reasons

a. $\overline{SU} \cong \overline{LR}, \overline{TU} \cong \overline{LN}$

a. Given

b. $SU = LR, TU = LN$

b. Definition of \cong segments

c. $SU = ST + TU$

c. SAP

$LR = LN + NR$

d. $ST + TU = LN + NR$

d. Substitution

e. $ST + LN = LN + NR$

e. Substitution

f. $ST + LN - LN = LN + NR - LN$

f. Subtraction

g. $ST = NR$

g. Substitution Property

h. $\overline{ST} \cong \overline{NR}$

h. def of \cong

6. Given: $\overline{AB} \cong \overline{CD}$

Prove: $\overline{CD} \cong \overline{AB}$

Proof:

Statements

Reasons

a. $\overline{AB} \cong \overline{CD}$

a. Given

b. $AB = CD$

b. def of \cong

c. $CD = AB$

c. Symmetric

d. $\overline{CD} \cong \overline{AB}$

d. Definition of \cong segments